

THE ADVANCED PHOTON SOURCE

Update on the APS Upgrade



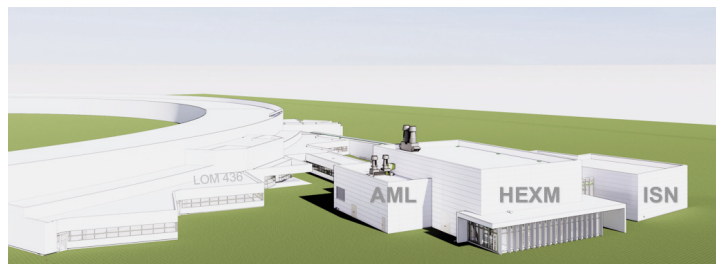
The U.S. Department of Energy's (DOE's) Advanced Photon Source is undergoing an \$815 million upgrade (APS-U) that will, as early as late-2023, enable user science at a completely new and unprecedented scale.

As part of the upgrade, the existing 1.1-kilometer circular storage ring will be replaced and x-ray beamlines and other equipment will be updated, creating a vastly more powerful facility and brighter x-ray production. The brightness of APS x-rays will be up to 500 times greater than the current machine and will significantly improve performance.

There have been COVID-related impacts across the project, but work has continued apace, with the overall construction schedule so far intact. Project management is tracking COVID effects on vendors and including those effects in project plans. The team continues working toward the current downtime date of June 2022.

The first storage ring magnet support assembly (concrete/metal base and associated machined plate) and associated 11 magnets (above left) were assembled and alignment data were taken before and after the storage ring components were mounted. The goal is to mechanically place all components to within 30 microns rms in x,y (perpendicular to beam axis). The first pass came very close and the process is now being repeated to gather more data, not just for alignment, but also to optimize workflow.

The project has acquired 100,000+ sq. ft. of space ~2 miles off-site. Storage racks have been installed (above right, top photo) and components are being relocated from on-site storage locations.



Construction has started on the Long Beamline Building, an experiment hall that will house two new beamlines (the In Situ Nanoprobe and the High Energy X-ray Microscope) being built as part of the Upgrade (above). Great care is being taken to refine the construction schedule so that vibration-causing activities are conducted during the APS shutdown (December 17, 2020-January 25, 2021) as much as possible. Beneficial occupancy is expected to be in spring of 2022.

The Advanced Photon Source and the Advanced Photon Source Upgrade at Argonne National Laboratory are funded by the U.S. Department of Energy Office of Science under Contract No. DE-AC02-06CH11357.

CALL FOR APS GENERAL-USER PROPOSALS

The Advanced Photon Source is open to experimenters who can benefit from the facility's high-brightness hard x-ray beams.

General-user proposals for beam time during Run 2021-2 are due by Friday, March 5, 2021.

Information on access to beam time at the APS is at http://www.aps.anl.gov/Users/apply_for_beamtime.html or contact Dr. Dennis Mills, DMM@aps.anl.gov, 630/252-5680.

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